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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,026	06/20/2001	Toshiyuki Akiyama	500.40273X00	3444
20457	7590	01/24/2005	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889			WAHBA, ANDREW W	
			ART UNIT	PAPER NUMBER
			2661	

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/884,026

Applicant(s)

AKIYAMA ET AL.

Examiner

Andrew W Wahba

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7, 8, 11 and 12 is/are rejected.
- 7) ☐ Claim(s) 3-6, 9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.



PHIRIN SAM
PRIMARY EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01/30/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it employs the term "comprises" in line 5. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Seki et al (US Patent 5,771,224).

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With regard to claims 1 and 11, Seki et al discloses a block diagram forming an OFDM receiver as illustrated by Figure 4. Seki et al discloses a radio modulated signal at frequency converted 21(input terminal) (column 9, lines 8-12). Seki et al discloses an equalizer 31 (distributing circuit) to equalize the information symbols held in memory 27. The symbol output from equalizer 31 is held in memory 34 and then applied to de-multiplexer 35 that outputs QAM information symbols (first modulator) and QPSK symbols (second modulator / different) separately (column 10, lines 33-42). Seki et al discloses a transmitter (transmission unit) in which the QPSK symbols are inserted at regular intervals for transmissions (column 12, lines 5-10). Seki et al further discloses a diagram for use in the explanation of the OFDM system as shown in Figure 2. The transmission frame format in which the number of carriers of an OFDM symbol is N (plurality of predetermined carriers) and the number effective carriers is n (predetermined number of columns) (column 7, lines 22-27).

With regard to claim 2, Seki et al discloses, as shown in Figure 2, the number of carriers N and the number of effective carriers n correspond to frequency (column 7, lines 22-27).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

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said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7, 8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seki et al (US Patent 5,771,224) in view of Nakamura et al (US Patent 5,107,504).

With regard to claims 7 and 12, Seki et al discloses a block diagram forming an OFDM receiver as illustrated by Figure 4. Seki et al discloses a radio modulated signal at frequency converted 21(input terminal) (column 9, lines 8-12). Seki et al discloses an equalizer 31 (distributing circuit) to equalize the information symbols held in memory 27. The symbol output from equalizer 31 is held in memory 34 and then applied to de-multiplexer 35 that outputs QAM information symbols (first modulator) and QPSK symbols (second modulator / different) separately (column 10, lines 33-42). Seki et al discloses a transmitter (transmission unit) in which the QPSK symbols are inserted at regular intervals for transmissions (column 12, lines 5-10). Seki et al further discloses a diagram for use in the explanation of the OFDM system as shown in Figure 2. The transmission frame format in which the number of carriers of an OFDM symbol is N (plurality of predetermined carriers) and the number effective carriers is n (predetermined number of columns) (column 7, lines 22-27).

Seki et al discloses a QPSK symbol error detector 32 coupled to a correction circuit 30 (column 10, lines 12-14), but does not expressly disclose a first error correction coding circuit and second error correction coding circuit.

Nakamura et al discloses a multilevel quadrature amplitude modulator that includes a first error correcting producing code unit 21 and a second error

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correcting code producing unit 22 as illustrate by Figure 1 (column 6, line 58 – column 7, line 31). As the two units operated independently of one another, their performances may be different.

A person of ordinary skill in the art would have been motivated to employ Nakamura et al in Seki et al in to produce a multilevel quadrature amplitude modulated signal with a decreased peak amplitude regardless of the transmission information (Nakamura, column 2, lines 43-48). At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Seki et al with Nakamura et al (collectively "Seki-Nakamura") so as to obtain the invention as specified in claims 2 and 12.

With regard to claim 8, Seki et al discloses, as shown in Figure 2, the number of carriers N and the number of effective carriers n correspond to frequency (column 7, lines 22-27).

Allowable Subject Matter

6. Claims 3-6 and 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew W Wahba whose telephone number is (571) 272-3081. The examiner can normally be reached on M-F 8:30-5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully Submitted,

Andrew Wahba *AW*
Patent Examiner
January 18, 2005

Phirin Sam
PHIRIN SAM
PRIMARY EXAMINER